

Long Wave Mid-Infrared Source for Trace Gas Sensing, Phase I

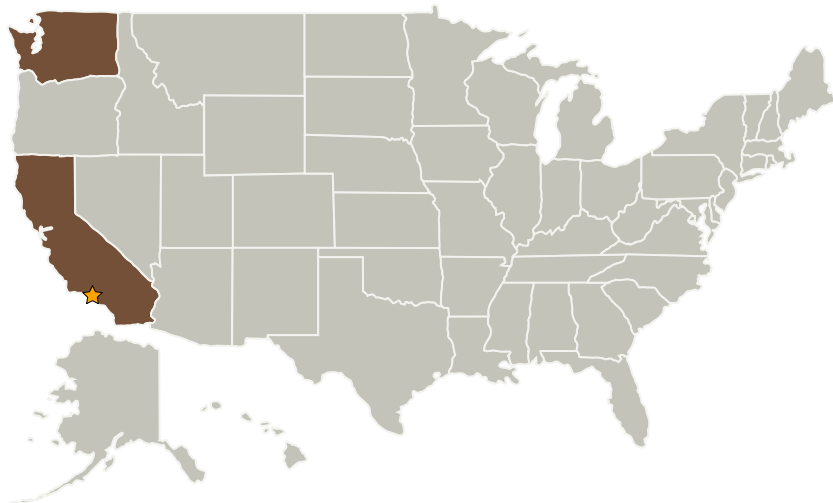
Completed Technology Project (2006 - 2006)



Project Introduction

Tunable laser spectrometers are used by NASA for investigations of planetary atmospheric constituent gases. The availability of widely tunable long-wavelength (3 to 12 μm) lasers operating at room temperature would allow such spectrometers to a wider range of gas species detection sensitivity increased by orders-of-magnitude relative to near-infrared lasers currently used in these applications. Aculight proposes to demonstrate a novel mid-infrared laser technology capable of room temperature operation at any wavelength between 2 and 17 μm . We will demonstrate, for the first time, continuous wave optical parametric oscillation in the new nonlinear material, orientation-patterned Gallium Arsenide (OP-GaAs) and show that it can be pumped by low cost, compact fiber-based sources developed for the telecommunications industry.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California
AcuLight Corporation	Supporting Organization	Industry	Bothell, Washington



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

Washington

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers